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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,636	12/22/2003	Shaun Lee Harris	200309099-1	7415

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EXAMINER
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AMRANY, ADI

ART UNIT	PAPER NUMBER
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2836

DATE MAILED: 05/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/743,636	<b>Applicant(s)</b> HARRIS ET AL.	
	<b>Examiner</b> Adi Amrany	<b>Art Unit</b> 2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 December 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/22/03</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 7 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

The limitation that the output combining element comprises active or passive elements does not limit the disclosure of claim 1. Active or passive combining elements includes all types of devices, as there is no other way to combine power lines.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-7, 13, 15, 17-22, and 28 are rejected under 35 U.S.C. 102(e) as being anticipated by MacDonald et al (US 6,650,560).

With respect to claim 1, McDonald discloses an equipment (figure 1A, item 10, and column 3, lines 7-9) operable to receive and operate on AC and DC input power, comprising;

an AC distribution system (figure 1, items 12 and 17, and column 3, lines 20-22 and 26-29) which is operable to receive and distribute AC input power,

a DC distribution system (figure 1, items 14 and 17, and column 3, lines 22-29) which is operable to receive and distribute DC input power,

one or more AC/DC converters (figures 1 and 2, item 22, and column 4, lines 40-56) operable to receive AC input power from the AC distribution system and to produce one or more first DC outputs (figure 1, items 16 and 18),

one or more DC/DC converters (figures 1 and 2, item 24, and column 5, lines 33-49) operable to receive DC input power from the DC distribution system and to produce one or more second DC outputs (figure 1, items 16 and 18), and

an output combining element (figures 1 and 2, item N1, and column 3, lines 51-57) operable to couple the first DC output and the second DC output to a load.

With respect to claim 2, McDonald discloses the equipment of claim 1, and further discloses wherein the AC distribution system provides power (figure 2A, power lines connecting AC input and Vcc of controller IC1) to converters which provide one or more DC outputs to the equipment.

With respect to claim 3, McDonald discloses the equipment of claim 1, and further discloses wherein the DC distribution system provides power (figure 2C, power lines connecting DC input and Vcc of controller IC2) to converters which provide one or more outputs to the equipment.

With respect to claim 4, McDonald discloses the equipment of claim 1, and further discloses the AC distribution system for the AC input power comprises conditioning (figure 1A, item 25, column 3, lines 51-56, and column 4, lines 57-62) for the AC input power.

With respect to claim 5, MacDonald discloses the equipment of claim 1, and further discloses the DC distribution system for the DC input power comprises conditioning (figure 1, item 25, column 3, lines 51-56, and column 4, lines 57-62) for the DC input power.

With respect to claim 6, MacDonald discloses the equipment of claim 1, and further discloses the output combining element comprises diode combining (figure 2B, item D11, figure 2C item D8, and column 5, lines 39-43) of one or more of AC/DC, DC/DC, and AC/DC and DC/DC converter outputs.

With respect to claim 7, MacDonald discloses the equipment of claim 1, and further discloses the output combining element comprises active (column 5, line 50 to column 6, line 13) or passive elements. MacDonald discloses passive elements as discussed in the claim 6 rejection above.

With respect to claim 13, McDonald discloses a power system, comprising an AC power source (figure 1, item 12), a DC power source (figure 1, item 14), and an equipment operable to receive and operate on power from both the AC and DC power sources (figure 1, item 10, and column 3, lines 7-9).

With respect to claim 15, MacDonald discloses the power system of claim 13, and further discloses that the equipment comprises;

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an AC distribution system (figure 1, items 12 and 17, and column 3, lines 20-22 and 26-29) which is operable to receive and distribute AC input power,

a DC distribution system (figure 1, items 14 and 17, and column 3, lines 22-29) which is operable to receive and distribute DC input power,

one or more AC/DC converters (figures 1 and 2, item 22, and column 4, lines 40-56) operable to receive AC input power from the AC distribution system and to produce one or more first DC outputs (figure 1, items 16 and 18),

one or more DC/DC converters (figures 1 and 2, item 24, and column 5, lines 33-49) operable to receive DC input power from the DC distribution system and to produce one or more second DC outputs (figure 1, items 16 and 18), and

an output combining element (figures 1 and 2, items N1, 25, and N2, and column 3, lines 51-57) operable to couple at least one of the one or more first DC outputs and the one or more second DC outputs to a load.

With respect to claim 17, MacDonald discloses the power system as provided in claim 13, and further discloses that the AC and DC power sources further comprise conditioning (figure 1, item 25, and column 3, lines 51-56, and column 4, lines 57-62).

With respect to claim 18, the method of operating with dual input power sources is rejected as the elements of the method are anticipated by MacDonald, as described above in the rejections to claims 1, 6 and 7.

With respect to claim 19, MacDonald discloses the method of claim 18, and further discloses the one or more first and second DC converted voltages are a voltage level (column 3, lines 32-39) and the one or more DC equipment voltages (figure 1,

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items 16 and 18) are derived (figure 1, connection between 22/24, N1, 25, and N2, and column 3, lines 51-56) from the voltage level. The disclosure that the outputs of the AC/DC and DC/DC converters are "substantially similar" means they may be the same level.

With respect to claim 20, MacDonald discloses the method of claim 18, and further discloses first and second DC converted voltages comprise a first voltage level and a second voltage level (column 3, lines 32-39) and wherein the one or more DC equipment voltages are derived (column 3, lines 51-56) from the first and second voltage levels. The disclosure that the outputs of the AC/DC and DC/DC converters are "substantially similar" means they may be distinct levels.

With respect to claim 21, MacDonald discloses the method of claim 18, and further discloses the first and second DC converted voltages are a plurality of voltage levels (column 3, lines 32-39) and wherein the one or more DC equipment voltages are an equipment voltage level derived (column 3, lines 51-56) from the plurality of voltage levels. The disclosure that the outputs of the AC/DC and DC/DC converters are "substantially similar" means they may be different, and form a plurality of levels.

With respect to claim 22, MacDonald discloses the method of claim 18, and further discloses the elements of the method of distributing the AC input power received by the equipment, and distributing the DC input power received by the equipment. These elements are discussed above in the rejection to claims 2 and 3.

With respect to claim 28, MacDonald discloses the elements that comprise the means claimed, as discussed in the rejection to claim 1, above.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over MacDonald, in view of Liu (US 2003/0111909).

With respect to claim 8, MacDonald discloses the equipment of claim 1, as described above.

MacDonald does not expressly disclose the output combining element comprises load sharing between converters.

Liu discloses that the outputs of the power converters are coupled with the load sharing controllers. The outputs of the load sharing controllers are coupled together with their counterpart outputs from the second power supply board in a load sharing agreement (figure 5, elements 518A and 518B, and page 6, paragraph 49).

MacDonald and Liu are analogous because they are from the same field of endeavor, namely power distribution systems. Further, MacDonald and Liu both convert DC voltages to different levels and distribute those voltages to one or more loads.



At the time of the invention by applicant, it would have been obvious to a person of ordinary skill in the art to combine the power converters disclosed in MacDonald with the load sharing controllers disclosed in Liu.

The motivation for doing so would have been to create a power distribution system that provides redundancy against input power failure.

With respect to claim 9, MacDonald discloses the equipment of claim 1, as described above, but does not expressly disclose the output combining element comprises inputs from one or more redundant converters.

Liu discloses separate redundant pairs of power supplies in a load sharing arrangement (page 3, paragraph 31, lines 3-5, page 3, paragraph 35, lines 1-6, and page 4, paragraph 36, lines 4-8). Liu further discloses that the level of redundancy may be increased from two power supplies per circuit board to three or four (page 4, paragraph 40, lines 7-20).

At the time of the invention by applicant, it would have been obvious to a person of ordinary skill in the art to combine the power converters disclosed in MacDonald with the redundancy disclosed in Liu.

The motivation for doing so would have been to create a power distribution system that provides redundancy against input power failure.

With respect to claim 10, MacDonald discloses the equipment of claim 1, as described above, but does not expressly disclose the output combining element includes communications with one or more processors internal or external to the output combining element.

Liu discloses a control logic coupled with the power converters and load sharing controllers (figure 5, item 506, and page 6, paragraph 51, lines 1-11). Liu further discloses that the control logic reports to the central system Monitoring and Peripheral Management Module, which manages and monitors overall system environmental and mechanical parameters (page 5, paragraph 42).

At the time of the invention by applicant, it would have been obvious to a person of ordinary skill in the art to combine the power converters disclosed in MacDonald with the control logic disclosed in Liu.

The motivation for doing so would have been to create a power distribution system that can monitor against input power failure.

With respect to claim 11, MacDonald discloses the equipment of claim 1, as described above, but does not expressly disclose the output combining element comprises control signals from one or more converters.

Liu discloses that the control logic is coupled with the power converters in order to detect faults and shut down the power supply before any damage is done (page 6, paragraph 51, lines 1-17). Also, figure 5 shows that the outputs of the power converters (502 and 504) are each connected to input ports of the control logic (506).

At the time of the invention by applicant, it would have been obvious to a person of ordinary skill in the art to combine the power converters disclosed in MacDonald with output signal of the power converters disclosed in Liu.

The motivation for doing so would have been to create a power distribution system that can monitor against converter and input failures.

With respect to claim 12, MacDonald discloses the equipment of claim 1, as described above, but does not expressly disclose the first and second converters of one or more of the AC/DC converters and the DC/DC converters are in communication for the purpose of load control.

Liu discloses load sharing controllers that balance the power delivered by the power supply with the power delivered by the counterpart power supply (figure 5, items 502, 504, 518A, 518B, and 506, and page 6, paragraph 50, namely lines 1-14). The pair of converters is in communication through load share controllers and a control logic unit. The other pairs that comprise the redundancy each share load information in the same manner on their respective circuit boards.

At the time of the invention by applicant, it would have been obvious to a person of ordinary skill in the art to combine the power converters disclosed in MacDonald with the load sharing converters disclosed in Liu.

The motivation for doing so would have been to create a power distribution system that provides redundancy against input power failure.

6. Claims 14, 16 and 23-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over MacDonald, in view of Sadler (US 6,430,068), and in view of applicants' admitted prior art.

With respect to claim 14, MacDonald discloses the power system of claim 13.

MacDonald does not expressly disclose the AC power source further comprises a plurality of AC power sources and the DC power source further comprises a plurality of DC power sources.

Sadler discloses a power system (figure 1, item 100) that comprises an equipment (figure 1, item 101, and column 3, lines 24-29) that operates on a plurality of AC power sources (figure 1, items 103, 105, and column 3, lines 30-33). Sadler discloses the use of multiple power sources so that failure by any one power source would only disable half of the equipment (column 3, lines 45-47).

While Sadler only discloses AC inputs, and does not mention DC inputs, figures 1 and 2 (prior art) in applicant's specification demonstrate that both power sources are known to be used in power systems.

MacDonald and Sadler are analogous because they are both from the same field of endeavor, namely power supply systems.

At the time of the invention by applicant it would have been obvious to a person of ordinary skill in the art to combine the AC and DC power sources in MacDonald with the multiple power sources disclosed in Sadler and applicants' admitted prior art.

The motivation for doing so would be create a power system to supply DC outputs to a load, where the power system contains a plurality of AC power sources and a plurality of DC power sources to act in redundancy in the case that any one of the power sources failed.

With respect to claim 16, MacDonald discloses the power system of claim 1, but does not expressly disclose a plurality of equipments accepting power from both the AC and DC power sources.

Sadler discloses a plurality of equipments (figure 1, items 101, and column 3, lines 26-30), where each equipment provides a plurality of DC output voltages (column 3, lines 33-34).

At the time of the invention by applicant it would have been obvious to a person of ordinary skill in the art to combine the dual input AC and DC power supply system disclosed in MacDonald with the plurality of equipments disclosed in Sadler and applicants' admitted prior art.

The motivation for doing so would have been to create a redundant configuration of equipment in the event that one of them failed.

With respect to claim 23, the method of operating a system comprising a plurality of equipments operable from multiple input power sources is rejected, as the elements of the method are obvious over MacDonald, in view of Sadler and in view of applicants' admitted prior art, as described above in the rejections to claims 13-16.

With respect to claim 24, MacDonald, in view of Sadler and in view of applicants' admitted prior art, discloses the method of claim 23, and further discloses the one or more first and second DC converted voltages are a voltage level (column 3, lines 32-39) and the one or more DC equipment voltages (figure 1, items 16 and 18) are derived (figure 1, connection between 22/24, N1, 25, and N2, and column 3, lines 51-56) from

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the voltage level. The disclosure that the outputs of the AC/DC and DC/DC converters are "substantially similar" means they may be the same level.

With respect to claim 25, MacDonald, in view of Sadler and in view of applicants' admitted prior art, discloses the method of claim 23, and further discloses first and second DC converted voltages comprise a first voltage level and a second voltage level (column 3, lines 32-39) and wherein the one or more DC equipment voltages are derived (column 3, lines 51-56) from the first and second voltage levels. The disclosure that the outputs of the AC/DC and DC/DC converters are "substantially similar" means they may be distinct levels.

With respect to claim 26, MacDonald, in view of Sadler and in view of applicants' admitted prior art, discloses the method of claim 23, and further discloses the first and second DC converted voltages are a plurality of voltage levels (column 3, lines 32-39) and wherein the one or more DC equipment voltages are an equipment voltage level derived (column 3, lines 51-56) from the plurality of voltage levels. The disclosure that the outputs of the AC/DC and DC/DC converters are "substantially similar" means they may be different, and form a plurality of levels.

With respect to claim 27, MacDonald, in view of Sadler and in view of applicants' admitted prior art, discloses the method of claim 23, and further discloses the elements of the method of distributing the AC input power received by the equipment, and distributing the DC input power received by the equipment. These elements are discussed above in the rejection to claims 2 and 3.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adi Amrany whose telephone number is (571) 272-0415. The examiner can normally be reached on weekdays, from 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571) 272-2800 x36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AA



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